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ABSTRACT

Preliminary data from a study documenting parental perceptions of injuries and steps taken by inner-city and suburban parents to make their homes safe are reported. Participants were 407 families with children under 5 years old. Families were provided one of the following interventions: (1) a well child visit; (2) safety equipment (3) physician counseling about injury prevention; or (4) physician counseling and safety equipment. Physician counseling involved materials designed by the American Academy of Pediatrics. Safety equipment included a car seat, outlet covers, cabinet latches, syrup of ipecac, a stair gate, window guards, a smoke detector, fire extinguisher, and a hot water gauge. About 6 months after the intervention, project staff conducted home safety audits and in-depth interviews with parents. The home safety audit concerning 178 of the 407 families is discussed. Families were about equally divided between inner-city and suburban sites. Data revealed that inner-city children faced a greater risk than suburban children for injuries. Data showed inconsistency in suburban families' approaches to safety. Inner-city parents were very concerned about their children's safety, had taken safety measures that they felt were appropriate, faced situational constraints on the use of equipment, and held attitudes discouraging safety equipment use. (RH)

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PARENTAL COMPLIANCE

WITH CHILDHOOD INJURY PREVENTION STRATEGIES

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Parental Compliance with Childhood Injury Prevention Strategies

The greater risk of mortality due to injuries among poor children has been documented,^{1,2} but little work has examined safety measures taken in both inner city and suburban homes.³ This paper reports preliminary data from a study examining what steps inner city and suburban parents take to make their homes safe and documenting parental perceptions of injuries.

Methods

Design

The Children's Safety Research Project used a quasi-experimental design. It recruited 407 families with children under the age of five in two clinical sites--one inner city and the other suburban. At the time of recruitment, demographic data about the family were collected. Families in each site were provided with one of the following interventions: a) the regular well child visit, b) safety equipment, c) physician counseling about injury prevention or d) physician counseling and safety equipment (See Figure 1). Assignment to a treatment group was done sequentially rather than randomly. After the well child visit, data on the content of the encounter, specifically, information about injury prevention discussions, were collected from the physician and the chart to document the intervention.

Physician counseling consisted of materials designed by the American Academy of Pediatrics: a schedule of developmentally appropriate injury prevention topics, a handout highlighting age

appropriate injury concerns and preventive strategies and a self-report questionnaire about parents' safety habits.⁴ The providers in both sites were trained in the use of the materials by a pediatrician involved in designing the program.

Safety equipment provided to study families included a car seat, outlet covers, cabinet latches, syrup of ipecac, a stair gate, window guards, a smoke detector, fire extinguisher and a hot water gauge. These items were selected because they were recommended in the safety counseling performed by the physicians.

About six months after the intervention, project staff collected two types of post-intervention observations: in-depth interviews with the parents about their perceptions of injuries and a safety audit of the home, which I'll discuss today.

Safety Audit Data Collection

Researchers checked for 32 potential hazards in each room of the household, using a form modified from that used by Bass et al.³ This slide shows the topics and contents of the safety audit. Researchers visually confirmed where items were kept or, in the case of hot water temperature, measured it directly.

Researchers coded the presence or absence of the 32 hazards for each room to which the child had access. In some instances, such as whether the room had window screens, researchers coded "all, some or none". Most hazards were coded "yes" or "no" since pretests found that counting items added substantial time to the home visit and were prone to error. Outcome measures included

the average number of hazards per room, the number of risk items in the household and the proportion of possible risks present in five risk types--burns, poisoning, suffocation, cuts, and electrical injuries.

Post-intervention data collection is taking longer than anticipated. The figures reported today come from 178 families almost equally divided among the inner city and suburban sites.

Findings

Description of the population

Table 2 highlights some of the significant differences between the inner city and suburban families. The inner city families had fewer two parent households, much lower income, and were much less likely to own their own home. The educational gap was not as great as might have been expected, but inner city mothers did have less education. In addition, there were more people in inner city households.

Household Risks

We examined household risks in two ways. First, we examined the average number of risks per room, so that we controlled for the number of rooms in the home. The suburban homes had half the number of risk items per room as did the inner city home. The homes of the suburban families had an average of 2.5 risks per room, while the homes of inner city families had an average of 5.0 risks per room ($p < .001$), as shown in Table 3.

We also looked at the total number of hazards in the home since the child has access to them regardless of the number of

rooms in the house. Even with fewer rooms, inner city homes had an average 31.9 hazards, while the suburban homes had an average of 21.5 ($p < .001$). These figures were conservative estimates of the risks in homes since we coded only for the presence or absence of hazards. For example, two laundry detergents accessible to a child were coded the same as one detergent accessible.

Risks for Specific Injuries

We also categorized hazards into risks for falls, burns, poisoning, suffocation, cuts and electrical injuries. Several hazards were combined for each of these risks. For example, the calculation of risks for falls included a count of the number of rooms with some windows lacking either screens or window guards, the number of rooms with non-electrical cords dangling or on the floor, the number of rooms with electrical cords dangling or on the floor and the number of rooms with stairways without safety gates. Since there were different numbers of items contributing to each risk type, we computed the proportion of possible risks which were found in each type. Homes recruited from the inner city site have significantly more of each of the risk types than do homes in the suburban site (see Table 4). While we had expected to see different kinds of risks in the two sites, the rank ordering of the risk types was the same in both sites, with one exception. The proportion of suffocation risks was the third highest in the suburban homes while it was the least commonly found risk in the inner city homes.

It was possible that differences in the hazards were masked by collapsing them into risk types. Table 5 lists all the risk items, with the site in which it was most frequently found in bold and also shows hazards where there were no significant differences between the sites. The two items which made the inner city homes at greater risk for electrical injuries were having small appliances accessible and a greater proportion of rooms where electrical outlets were uncovered. Few families in either site use dome covers over outlets in use, with at least 60% of the rooms in either site having outlets in use accessible to children. Few families leave small appliances within five feet of a water source. In the case of falls, suburban homes were at greater risk for falls on a stairway without a gate, but the large proportion of rooms whose windows had neither screens nor guards made inner city homes at greater risk for falls. Inner city homes were at greater risk for burns due to the availability of matches, accessibility of stove knobs, and presence of radiators. The risk for cuts was due to the greater availability of sharp objects and fans in inner city homes (most of data collection was done in this past summer). The greater risk for poisoning in inner city homes was due to a greater risk of lead poisoning, accessibility of cleaning supplies, insect/plant products, laundry products, medicines without safety caps, toiletries, cigarettes and tobacco ashes. Suffocation risks were due to the greater incidence of small objects, plastic bags, string or rope, and dangling cords in inner city homes.

Discussion

These findings illustrate the greater risk inner city children face for injuries. But it is important to note that parents in the inner city are very concerned about their children's safety and have taken what measures they feel are appropriate to make the home safe for the children. The interview data suggests that families in the inner city faced some constraints on the use of equipment and have attitudes which did not encourage the use of equipment. Landlords would not allow some families to install some items, such as gates or window guards, which might make holes in the woodwork. Others lived in what they consider temporary housing, often with parents or other relatives, and planned to do things differently when they got into their own apartment. Many inner city apartments had few closets or shelves. Many kitchens had either no cabinets or had metal cabinets where safety latches did not work. For these reasons, families were unable to store materials out of the reach of children.

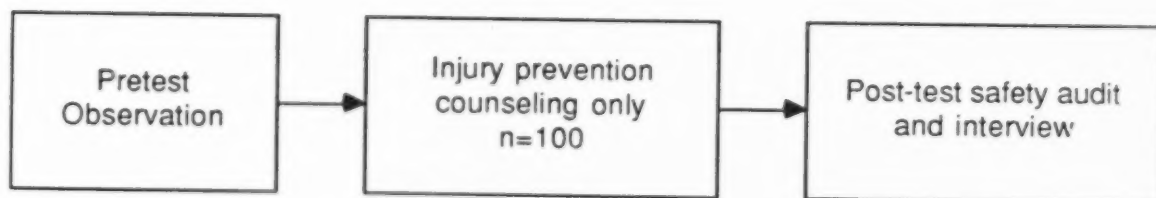
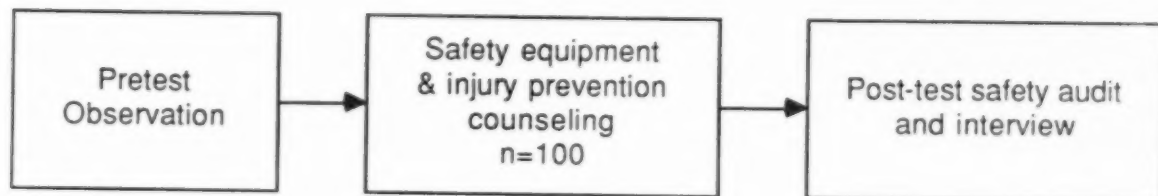
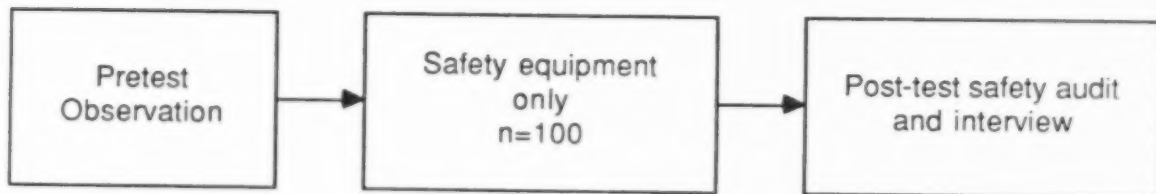
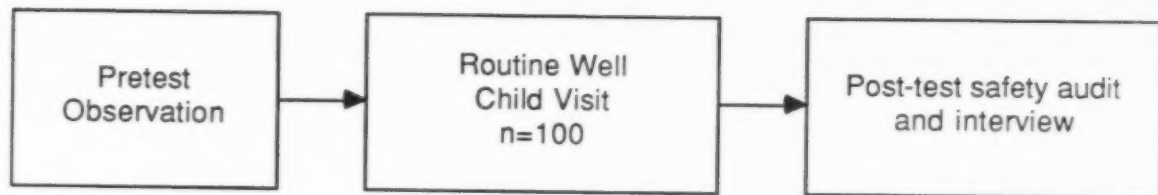
Sometimes parental attitudes did not support the use of equipment. For example, many parents reported that they kept everything dangerous out of the reach of the children and didn't need latches, but they often meant that they kept things on the counter or window sill, which we did not define as "out of reach." Inner city parents also perceived many dangers for their children outside the home and often felt that the home was a safe haven in which they were able to protect the child. Since they

perceived the home as a safe place to begin with, they might have been less motivated to make changes.

The suburban families, while living in homes with fewer risks, still have dangers. Suburban families appear somewhat inconsistent in their approach to safety. They may lock the cabinets to keep children out of poisons, but do not consider putting the same latches on drawers to keep children away from other dangerous items. They may make the kitchen safer, but leave laundry products on the floor in the utility room.

We plan several additional analyses of the safety audit data. We will merge background data on the families such as income, number of people in the home, and the educational level of the mother, with the safety data to examine the impact of those factors. We will examine the use of safety equipment, in addition to examining risks present in the home. We will also spend considerable time analyzing the meaning of injury prevention to the parents and their perceptions of risk to explain how they go about keeping their children safe.

Children's Safety Research Project Design



Name of Room: (distinguish between child's BR & others)														5-6
Item	1	2	3	4	5	6	7	8	9	10	11	12		
Cabinets or drawers— below 5' (Y/N)													7	
Latches? (All, Some, None)													8	
Items not in locked cabinet or over 5'														
Cleaning supplies (Y/N)													9	
Household products <i>not</i> in original container (Y/N)													10	
Insect or plant products (Y/N)													11	
Laundry products (Y/N)													12	
Lighter fluid (Y/N)													13	
Matches or lighters (Y/N)													14	
Medicines <i>without</i> safety caps (Y/N)													15	
Plastic bags or wrappers (Y/N)													16	
Sharp objects (knives, scissors) (Y/N)													17	
String or rope (Y/N)													18	
Toiletries (Y/N)													19	
Other _____ (Y/N)													20	
Cigarettes/cigars/pipes available (Y/N)													21	
Ashtrays accessible (Y/N)													22	
Ashes or butts accessible (Y/N)													23	
Cords-not electric (telephone, drapery) dangling or on floor (Y/N)													24	
Crib/playpen railings > 2 3/8" apart (Y/N)													25	
Mattress spacing > 2 fingers (Y/N)													26	

List Plants: _____

Comments: _____

Table 1
(Continued)

Name of Room: (distinguish between child's BR & others)	1	2	3	4	5	6	7	8	9	10	11	12
Electrical												
Small appliances in room (Y/N)												
Any accessible (< 5' or not in locked cabinet) (Y/N)												
Any within 5' of sink, shower or tub (Y/N)												
Cords accessible (e.g. not concealed by furniture) (All, Some, None)												
Outlet sockets accessible (< 5' or not covered by furniture)(Y/N)												
Unused, accessible sockets without outlet covers (All, Some, None)												
Sockets in use without cover (All, Some, None)												
Fans < 5' (Y/N)												
Working Fireplace (Y/N)												
Screen in use (Y/N)												
Gates not at stairway (see stairs for others) (Y/N)												
Hot water temperature (child's bath & kitchen)(record reading)												
Lead (teeth marks on sill, crumbling plaster) (Y/N)												
Radiators (Y/N)												
Small objects lying around (if toy, list below)												
Stairs with > 2 steps (Y/N)												
Gates at stairway (All, Some, None)												
Stove handles accessible (Y/N)												
Toys with sharp edges or small pieces (Y/N)												
Bows, arrows, darts, trajectory (Y/N)												
Windows (that open) below 5' (Y/N)												
Screens or storms in good repair (All, Some, None)												
Window guards (except for fire escape) (All, Some, None)												

Comments:

Table 2

Characteristics of Inner City and Suburban Families

Marital Status

95% of suburban families have two parents
25% of inner city families have two parents

Mother's Education

46% of suburban mothers have at least a college degree
35% of inner city mothers completed high school, 32.4% have some college

Income

68% of suburban families have income over \$35,000 per year
50% of inner city families have income under \$5,000 per year

Home Ownership

88% of suburban families own their home
12% of inner city families own their home

Number of People in the Household

Suburban families average 3.9 people with a range of 3-8.
Inner city families average 4.5 people with a range of 2-25.

Table 3

Average Number of Risks Per Room

Site	N	Mean	95% c.i.
Inner City	85	5.0	$\pm .3$
Suburban	93	2.5	$\pm .2$

$F=190.4$, $df=1, 176$, $p<.001$

Table 4

Average Proportion of Risk Type

Risk Type	Inner City	Suburban	P
Electrical injury	39.7	32.5	p<.001
Falls	17.6	12.5	p<.001
Burns	13.2	3.0	p<.001
Cuts	10.3	2.9	p<.001
Poisoning	9.4	2.1	p<.001
Suffocation	9.1	5.6	p<.001

Table 5

Proportion of Rooms with Each Risk Item

Risk Item	Mean Proportion Inner City	Mean Proportion Suburban	P
Electrical Injuries			
Outlets without cover	.54	.37	.01
Small appliances accessible	.51	.40	.001
Outlets in use without cover	.66	.61	ns
Electrical cords dangling or on floor	.21	.19	ns
Small appliances within 5' of sink	.05	.04	ns
Falls			
Windows w/o screen or window guard	.29	.04	.001
Stairs without gate	.02	.11	.001
Electrical cords dangling or on floor	.21	.19	ns
Other cords dangling or on floor	.17	.15	ns
Burns			
Radiators accessible	.46	.01	.001
Stove knobs accessible	.14	.07	.001
Matches accessible	.09	.03	.001
Hot water temperature >125°	.41	.54	ns
Lighter fluid accessible	.02	.01	ns
Fireplace without screen	.00	.00	ns

Table 5
(Continued)

Risk Item	Mean Proportion Inner City	Mean Proportion Suburban	P
Cuts			
Fans accessible	.22	.05	.001
Knives/scissors accessible	.16	.04	.001
Toys with sharp edges	.03	.02	ns
Bows or trajectory toys	.01	.00	ns
Poisoning			
Toiletries accessible	.22	.05	.001
Lead risk evident	.20	.00	.001
Cleaning supplies accessible	.17	.07	.001
Laundry products accessible	.13	.02	.001
Cigarettes accessible	.09	.02	.001
Tobacco ashes accessible	.09	.01	.001
Medicine without safety caps accessible	.06	.02	.001
Insect/plant products accessible	.03	.01	.05
Lighter fluid accessible	.02	.01	ns
Items not in original container	.01	.00	ns
Fireplace without screen	.00	.00	ns
Suffocation			
Cords dangling or on floor	.17	.15	.01
Small objects accessible	.16	.02	.001
Plastic bags accessible	.10	.03	.001
String or rope accessible	.03	.01	.01
Electric cords dangling or on floor	.21	.19	ns
Crib railings > 2 3/8"	.01	.01	ns

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